DRAFT EZAP NPRM

DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
14 CFR Parts 21, 25, 91, 121, 125, 129, and 145

[Docket No. FAA-2002-XXXXX; Notice No. 02-XX]

RIN 2120-XXXX

Program to enhance aircraft electrical wiring interconnection system (EWIS) maintenance and training

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA is proposing new rules to enhance aircraft electrical wiring interconnection system (EWIS) maintenance and training that would be applicable to type certificate (TC) holders, supplemental type certificate (STC) holders, air carriers, operators, and repair stations. The FAA has analyzed accident/incident data involving various aircraft systems and has discovered that aircraft wiring problems have caused numerous in-flight fires and smoke incidents. This proposal would reduce the number of

accidents and incidents that are related to aircraft wiring design, alteration, maintenance, inspection, and repair practices.

DATES: Comments must be received on or before [Insert date XX days after date of publication in the Federal Register].

ADDRESSES: Comments on this proposed rulemaking should be mailed or delivered, in duplicate, to: U.S. Department of Transportation, Dockets, Docket No. FAA-2002-XXXX, 400 Seventh Street SW., Room Plaza 401, Washington DC 20590. Comments may also be sent electronically to the following Internet address: 9-NPRM-CMTS@faa.gov. Comments may be filed and/or examined in Room Plaza 401 between 10 a.m. and 5 p.m. weekdays, except Federal holidays. In addition, the FAA is maintaining an information docket of comments in the Transport Airplane Directorate (ANM-100), Federal Aviation Administration, Northwest Mountain Region, 1601 Lind Avenue SW., Renton, WA 98055-4056. Comments in the information docket may be examined between 7:30 a.m. and 4:00 p.m. weekdays, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Fred Sobeck, AFS-304, Aircraft Maintenance Division, Federal Aviation Administration, 800

Independence Avenue, SW., Washington, DC 20591; telephone: (202) 267-7355.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested persons are invited to participate in this proposed rulemaking by submitting such written data, views, or arguments as they may desire. Comments relating to the environmental, energy, federalism, or economic impact that might result from adopting the proposals in this notice are also invited. Substantive comments should be accompanied by cost estimates. Commenters should identify the regulatory docket or notice number and submit comments in duplicate to the Docket address specified above. All comments received, as well as a report summarizing each substantive public contact with FAA personnel concerning this rulemaking, will be filed in the docket. All comments received on or before the closing date will be considered by the Administrator before taking action on this proposed rulemaking. Late filed comments will be considered to the extent practicable. The proposals contained in this notice may be changed in light of the comments received. The Docket is available

for public inspection before and after the comment closing date. Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must include with those comments a pre-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. FAA-2002-XXXX." The postcard will be date stamped and mailed to the commenter.

Availability of the NPRM

An electronic copy of this document may be downloaded using a modem and suitable communications software from the FAA regulations section of the Fedworld electronic bulletin board service (telephone: 703-321-3339), the Government Printing Office's electronic bulletin board service (telephone: 202-512-1661), or the FAA's Aviation Rulemaking Advisory Committee Bulletin Board service (telephone: (800) 322-2722 or (202) 267-5948).

Internet users may reach the FAA's web page at http://www.faa.gov/avr/arm/nprm/nprm.htm or the Government Printing Office's webpage at http://www.access.gpo.gov/nara for access to recently published rulemaking documents.

Any person may obtain a copy of this NPRM by submitting a request to the Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Avenue, SW., Washington, DC 20591, or by calling (202) 267-9680. Communications must identify the notice number or docket number of this NPRM.

Persons interested in being placed on the mailing list for future NPRM's should request from the above office a copy of Advisory Circular No. 11-2A, Notice of Proposed Rulemaking Distribution System, that describes the application procedure.

Background

National Transportation Safety Board investigation

On July 17, 1996, a Boeing 747 crashed into the Atlantic Ocean near East Moriches, New York. The National Transportation Safety Board (NTSB) determined that the probable cause of this accident was an explosion of the center wing fuel tank (CWT) resulting from ignition of the flammable fuel/air mixture in the tank. The source of ignition energy for the explosion could not be determined with certainty. However, of the sources evaluated by the investigation, the most likely one was a short

circuit outside the CWT that allowed excessive voltage to enter the CWT through electrical wiring associated with the fuel quantity indication system (FQIS).

During the NTSB's investigation of the recovered wreckage, several potentially unsafe conditions were found in and near the electrical wiring of the accident airplane, including cracked wire insulation, metal shavings that adhered to a floor beam where FQIS wires would have been routed, other debris, and sulfide deposits. In addition, evidence of several repairs that did not comply with the guidelines in Boeing's *Standard Wiring Practices Manual* (SWPM) were found on the accident airplane. Noncompliant repairs included the following:

- The use of an oversized strain relief clamp on the terminal block of the number 1 fuel tank compensator, which did not adequately secure the wires.
- Numerous open-ended (rather than sealed) wire splices, which exposed conductors to possible water contamination.
- Several wire bundles containing numerous wire splices on adjacent wires at the same location.

- Excessive solder on the connector pins inside the fuel totalizer gauge, which had connected the pins/wires from the right main fuel tank and the CWT FQIS.

In addition the NTSB found that deterioration, damage, and contamination of aircraft wiring and related components and unsatisfactory repairs were common in the airline transport airplanes that it inspected during the investigation. According to the NTSB's report "the condition of the wiring system in the accident airplane was not atypical for an airplane of its age and one that had been maintained in accordance with prevailing industry practices."

The NTSB found the deteriorated conditions of aircraft wiring systems of particular concern because the existence of these conditions revealed the general shortcomings of the current maintenance practices. These conditions were especially disturbing because it was apparent from those examinations that a large portion of aircraft wiring is difficult, if not impossible, to inspect or test because of its inaccessibility (as a result of being confined in wiring bundles or blocked by other obstructions). Moreover, the general nature of current wiring visual inspection criteria is

such that wire damage and other potentially unsafe conditions may not be detected, even on visible and accessible portions of aircraft wiring. The NTSB concluded that "insufficient attention has been paid to the condition of aircraft electrical wiring, resulting in potential safety hazards."

Aging Transport Non-Structural Systems Plan

The investigation into the July 17, 1996, fatal accident resulted in a heightened awareness of the importance of maintaining the integrity of aircraft wiring. The FAA began to investigate fuel tank wiring, and to strengthen its focus on aging wiring in general. In 1997, the White House Commission on Aviation Safety and Security (WHCSS) issued the following recommendation to the FAA: "In cooperation with airlines and manufacturers, the FAA's Aging Aircraft Program should be expanded to cover non-structural systems." In July 1998, the FAA issued the *Aging Transport Non-Structural Systems Plan*, (hereinafter "*Aging Systems Plan*") which addressed the WHCSS recommendation. The *Aging Systems Plan* focused specifically on wiring systems.

In the *Aging Systems Plan*, the FAA describes the results of its evaluation of six transport category airplanes deemed representative of the

"aging fleet of transport airplanes." The FAA found conditions similar to those found by the NTSB during airplane inspections in connection with the July 17, 1996, Boeing accident investigation, including the following:

- Deterioration of wiring and related components.
- Stiff and cracked wire.
- Contamination of wire bundles with metal shavings, dust, and fluids.
- Cracked wire insulation.
- Corrosion on connector pins.
- Improper wire installation and repairs.

The FAA also found that wires contained in wire bundles are difficult to inspect. The FAA made the following conclusions:

- Current maintenance practices do not adequately address wiring components.
- Wire inspection criteria are too general.
- Unacceptable conditions are not described in sufficient detail.
- Repair instructions and data are difficult to extract from standard practices manuals.

- Wire replacement criteria may not be adequate.
- Current incident/maintenance reporting procedures do not allow for easy identification of failures.

The FAA's *Aging Systems Plan* also detailed several tasks aimed at correcting these problems, including improving wiring inspection criteria and providing more detailed descriptions of undesirable conditions; improving inspector training to ensure that it adequately addresses the recognition and repair of aging wiring components; and developing new methods for nondestructive testing of wiring.

The NTSB has recommended that the FAA address all wiring issues identified in the *Aging Systems Plan*, either through rulemaking or through other means. The NTSB specifically cited the need for improved training of maintenance personnel to ensure adequate recognition and repair of potentially unsafe wiring conditions.

Aging Transport Systems Rulemaking Advisory Committee

To address the issues identified in the *Aging Systems Plan*, in 1998 the FAA established the Aging Transport Systems Rulemaking Advisory Committee (ATSRAC). The ATSRAC provides a forum for the airlines,

manufacturers, and other regulatory authorities to make recommendations to the FAA based on the *Aging Systems Plan*.

The FAA established the ATSRAC to provide advice and recommendations to the FAA Administrator on airplane system safety issues such as aging wiring systems. The ATSRAC was initially tasked in 1998 with five tasks, which included collecting data on aging wiring systems through airplane inspections, reviewing airplane manufacturer's service information, reviewing operators' maintenance programs, and providing the FAA with recommendations to enhance the safety of these systems.

The results and recommendations from the initial tasking indicated that problems associated with systems on aging airplanes were not completely related to the degradation of wiring systems over time. Inadequate installation and maintenance practices can lead to what is commonly referred to as an "aging system" problem. As such, the scope of ATSRAC is not limited solely to age-related issues, but includes improving the continued airworthiness of airplane systems, and in particular wiring systems.

In May 2001 the FAA assigned four new tasks to ATSRAC to facilitate the implementation of earlier recommendations by ATSRAC working groups. These new tasks were to address the need for new wire system certification requirements, propose changes to the standard practices manual, develop an enhanced training program for wire systems, and develop enhanced maintenance criteria for wiring systems. The proposed changes in this NPRM were derived from the maintenance, inspection, and alteration best practices developed through extensive research by ATSRAC working groups and Federal government working groups.

Wire System Safety Interagency Working Group (WSSIWG).

Another group that has studied wiring systems is the Wire System Safety Interagency Working Group (WSSIWG). The WSSIWG brought together the collective knowledge and expertise of various government agencies directly affected by wiring systems, including representatives from the Federal Aviation Administration, the Navy, the Air Force, the National Aeronautics and Space Administration, the Nuclear Regulatory Commission, the National Transportation Safety Board and the Defense

Nuclear Facilities Safety Board. The findings of this working group illustrate the depth of the existing problem.

The WSSIWG found that managing aging wiring systems is extremely time-consuming. The Navy, for example, spends approximately 1.8 million work-hours per year at the organizational level (on aircraft), troubleshooting and replacing aircraft wiring systems. The working group also found that inspection, testing, and maintenance of wiring systems is a technical challenge and that most diagnostic procedures currently in use can only detect serious deterioration or complete loss of electrical integrity. Furthermore, the working group found that knowledge about how wiring systems age and how they fail is limited.

The WSSIWG also found that currently a high degree of wire safety is maintained as a result of regulations, codes, and standards developed by Federal government agencies and operational practices developed by industry and regulators. However, as ever more complex wiring systems continue to age there needs to be a higher priority given to wiring systems and a more proactive stance in their management. A significant cultural shift in the perception of the safety significance of wiring systems is

necessary to ensure that wiring systems are designed, installed, and maintained for long-term integrity. Damaged parts of a wiring system must be located in a non-intrusive way, before they lead to multiple system failure. To locate such damage will require a change in maintenance philosophy from a largely reactive to a more proactive approach. (See, Wire System Safety Interagency Working Group, National Science and Technology Council, Review of Federal Programs for Wire System Safety 46 (2000)).

Advisory Circular 120-XX: Program To Enhance Aircraft Electrical Wiring Interconnection System Maintenance

Advisory Circular (AC) 120-XX provides guidance for developing enhanced wiring system maintenance for air carriers, air operators, holders of type certificates, holders of supplemental type certificates (STCs), maintenance providers, repair stations, and persons performing modifications or repairs. The guidance in AC 120-XX is based on recommendations submitted to the FAA from the Aging Transport Systems Rulemaking Advisory Committee (ATSRAC). The information in the AC was derived from the maintenance, inspection, and alteration best practices

identified through extensive research by ATSRAC working groups and Federal government working groups. The AC was issued to improve the awareness throughout the aviation industry of the importance of visual inspections of aircraft systems, particularly aircraft wiring systems. The AC promotes a housekeeping philosophy of "protect, clean as you go" when performing maintenance, repair, or alterations on or around aircraft wiring systems.

The objective of the AC is to enhance the maintenance of aircraft wiring systems through adoption by the aviation industry of the following:

(1) Enhanced Zonal Analysis Procedure (EZAP). AC 120-XX presents an analytical logic procedure identified as the "Enhanced Zonal Analysis Procedure" that permits appropriate attention to be given to electrical wiring installations. This is achieved using logic diagrams and explanatory text to identify applicable and effective tasks to (a) minimize accumulation of combustible materials and (b) address wiring installation discrepancies that may not otherwise be reliably detected by inspections contained in existing maintenance or inspection programs.

(2) Guidance for General Visual Inspection (GVI). AC 120-XX provides clarification of the definition for a General Visual Inspection and provides guidance on what is expected from such an inspection, whether performed as a stand-alone GVI or as part of a zonal inspection.

(3) Protections and Cautions. AC 120-XX identifies protection and cautions to be added to maintenance instructions, thereby enhancing procedures that will lead to minimization of contamination and accidental damage while working on the aircraft.

The enhanced aircraft wiring maintenance information described in AC 120-XX is intended to improve maintenance and inspection programs for all aircraft. As a result of the guidance provided in the AC, some manufacturers have updated their standard practices manuals. In addition the FAA anticipates that the manufacturers and airlines will update their maintenance program with respect to wiring systems prior to issuance of the final rule.

Wiring maintenance practices should contain a **"protect, clean as you go"** housekeeping philosophy. In other words, care should be taken to protect wire bundles and connectors during work, and to ensure that all

shavings, debris and contamination are cleaned up after work is completed. AC 120-XX promotes this proactive approach to wiring system health. Wiring needs to be given special attention when maintenance is being performed on it, or around it. This is especially true when performing structural repairs or modifications.

Discussion of the Proposal

1. Applicability and Purpose

The applicability of this proposed rulemaking is for turbine-powered transport category airplanes, provided the type certificate was issued after January 1, 1958, and the airplane has a maximum type certificated passenger capacity of 30 or more, or a maximum type certificated payload capacity of 7500 pounds or more. This proposal would require the development of instructions necessary to maintain the airplane wiring system. These instructions, when used appropriately, would increase the likelihood that wiring system degradation, including age related problems, will be identified and corrected. This proposal would also require additional training for persons performing maintenance or alterations on or around wire systems. Therefore, the goal of enhanced wiring maintenance

criteria is to ensure that maintenance actions and alterations are performed using improved procedures for protection of wiring systems from degradation, contamination and accidental damage. The goal of this proposed rule is to overcome a history of learned complacency with respect to wire system maintenance.

To fully realize the objectives of this proposal, air carriers, air operators, type certificate holders, STC holders, maintenance providers, repair stations and persons performing modifications or repairs would need to rethink their current approach to maintaining and modifying aircraft wiring and systems. This would require more than simply updating maintenance manuals and work cards and enhancing training. Maintenance personnel would need to be aware that aircraft wiring systems should be maintained with the same level of intensity as any other system in the aircraft. They would also need to recognize that visual inspection of wiring has inherent limitations. Small defects such as breached or cracked insulations, especially in small gage wire will not always be apparent. Therefore effective wiring maintenance combines visual inspection techniques with improved wiring maintenance practices and training.

2. Proposed Special Federal Aviation Regulation (SFAR) for Part 21:

BACKGROUND: Historically, when safety issues arise, the FAA works with TC holders and STC holders to identify solutions and actions that need to be taken. Some of the safety issues that have been addressed by this voluntary cooperative process include those involving aging aircraft structure, thrust reversers, cargo doors, and wing icing protection. Although these efforts have frequently been successful in achieving the desired safety objectives, a more uniform and expeditious response is required to address the maintenance, inspection, alteration, and repair of wiring systems in current production aircraft and those that are no longer in production.

The FAA considers that an SFAR would provide a means for the FAA to establish clear expectations and standards for TC and STC holders. An SFAR also would provide a timeframe within which inspection and maintenance of wiring systems on the affected airplanes would be uniformly addressed.

The proposal would ensure that the TC and STC holder complete a review of each affected type design based on an analytical logic procedure,

such as the EZAP recently developed in AC 120-XX. For aircraft models operating on maintenance programs that already include a dedicated Zonal Inspection Program (ZIP), the logic described in AC 120-XX would result in enhancements to those maintenance programs, and the zonal inspection requirements will not differ greatly from the existing ZIPs. For those operators that do not have a dedicated ZIP, application of the logic is likely to result in identification of a large number of wiring related tasks that would need to be consolidated within the existing Systems/Powerplant Program.

The proposed SFAR would require TC and STC holders for an aircraft, aircraft engine, or propeller to add the newly developed instructions for maintenance and inspection of wiring to their instructions for continued airworthiness (ICAWs). The SFAR would require the manufacturers who do not have ICAWs for specific aircraft to create ICAWs for maintenance and inspection of wiring for these aircraft.

APPLICABILITY OF THE SFAR: The proposed SFAR would be applicable to TC and STC holders. The FAA would limit the applicability of the proposed SFAR to turbine-powered airplanes with a maximum type

certificated passenger capacity of 30 or more, or a maximum type certificated payload of 7,500 pounds or more, for which the TC was issued after January 1, 1958. The aircraft safety objectives of this proposal would not be achieved unless STCs that could affect wiring systems are also reviewed. The STC holders would be required to review their STC's and include STC-specific maintenance, inspection, and repair procedures in either the Instructions for Continued Airworthiness or the maintenance manual.

The SFAR is also applicable to applicants for type certificates, amendments to a type certificate, and supplemental type certificates affecting wiring systems for those airplanes identified above, if the application was filed before the effective date of the SFAR and the certificate was not issued before the effective date of the SFAR.

The FAA has determined that turbine-powered airplanes, regardless of whether they are turboprops or turbojets, should be subject to the rule, because of the potential for degradation of wiring systems due to maintenance and alteration. This results in the coverage of the large transport category airplanes where the safety benefits and public interest are

greatest. This action affects approximately 7,000 U.S. registered airplanes in part 91, 121, 125, and 129 operations.

The date January 1, 1958, was chosen so that only turbine-powered airplanes, except for a few 1953–1958 vintage Convair 340s and 440s converted from reciprocating power, will be included. No reciprocating-powered transport category airplanes are known to be used currently in passenger service, and the few remaining in cargo service would be excluded. Compliance is not required for those older airplanes because their advanced age and small numbers would likely make compliance impractical from an economic standpoint. This is consistent with similar exclusions made for those airplanes from other requirements applicable to existing airplanes, such as the regulations adopted for flammability of seat cushions (49 FR 43188, October 24, 1984); flammability of cabin interior components (51 FR 26206, July 21, 1986); cargo compartment liners (54 FR 7384, February 17, 1989); access to passenger emergency exits (57 FR 19244, May 4, 1992); and Class D cargo or baggage compartments (63 FR 8032, February 17, 1998).

In order to achieve the benefits of this rulemaking for large transport

airplanes as quickly as possible, the FAA has decided to limit the applicability of the SFAR to airplanes with a maximum certificated passenger capacity of at least 30 or at least 7,500 pounds payload. Compliance is not required for smaller airplanes because it is not clear at this time that the possible benefits for those airplanes would be commensurate with the costs involved. For now, the applicability of the rule will remain as proposed in the notice. The FAA will need to conduct the economic analysis to determine if the rule should be applied to smaller airplanes. Should the results of the analysis be favorable, the FAA will develop further rulemaking to address the smaller transports.

Expectations of the TC holders:

The TC holder should review their design and apply an analytical logic procedure, such as the EZAP, to identify applicable and effective tasks that permit appropriate attention to be given to wiring installations. These tasks should be added to the TC holder's instructions for continued airworthiness and communicated through Maintenance Review Board Reports or service bulletins.

The TC holder also should develop protection and caution guidance

for use when performing maintenance and alteration that could result in contamination or damage to wiring systems. The maintenance instructions referred to in the SFAR are intended to refer to Chapter 20 of the Airplane Maintenance Manual and, where appropriate, standard practices manuals.

Expectations of the STC holders:

The SFAR also would apply to STC holders. All STCs must be reviewed to determine if they could have had an impact on wiring during STC installation and to ensure that the instructions for continued airworthiness have adequate protection and caution guidance for wiring systems. In addition to STCs that directly involve changes to wiring, other STCs could have a significant impact by subjecting the wiring to contamination or accidental damage. One example is a structural modification or repair that poses a risk of contamination by drill shavings. Another example would be an STC that involves the disconnect of hydraulic plumbing that poses a risk of contamination by hydraulic fluid. In both examples, the STC installation instructions should include specific instructions for protection of electrical wiring from possible contamination. The FAA expects that the STC holder would use the

information in AC 120-XX to develop scheduled maintenance instructions based on an analytical logic procedure, such as EZAP. In addition, the FAA expects the STC holder to include in the STC maintenance instructions the relevant protection and caution information identified in the AC.

3. Proposed Changes to Part 25:

APPLICABILITY OF PART 25 REQUIREMENTS: The proposed amendments to part 25 would apply to all transport category airplane models for which an application for type certification is made after the effective date of the proposed rule. In addition, as currently required by the provisions of § 21.50, applicants for any future changes to existing part 25 type certificated airplanes, including STC's, would be required to provide any necessary instructions for continued airworthiness or maintenance manuals, as required by § 25.1529.

The proposed changes to section H25.3 of Appendix H to part 25, would require the development of scheduled maintenance instructions for electrical wiring interconnection systems. These instructions would be developed through an analytical logic procedure that provides a means to

identify applicable and effective tasks that minimize accumulation of combustible materials and address wiring discrepancies. The wiring system inspection tasks derived from the analytical logic procedure must be implemented using the same standards that were used in performing the analytical logic procedure. The SFAR considers the definitions of GVI and DET contained in AC 120-XX as the minimum standard for EWIS inspections that may be derived from the application of the analytical logic procedure.

CONSOLIDATION AND UPDATE OF PART 25 SUBPARAGRAPHS: **[This part of the NPRM will be drafted by the Directorate and added to this document later.]** The FAA would review §§ 25.831, 25.869, 25.1309, 25.1353, 25.1359 and other sections related to wiring, and would update and consolidate them into a single new section of part 25 that will deal specifically with Electrical Wiring Interconnection Systems (EWIS). Recommendations from ATSRAC identified that a major problem with wiring systems is the lack of awareness regarding its design and maintenance. Further, an FAA review of a sample of recent certification compliance checklists identified that a comprehensive program was not

used to address wiring systems on an airplane level. Current regulations used for certifying wire systems are contained throughout part 25. By consolidating these existing regulations into one section specifically for wiring, the desired awareness will be created during design and certification.

CHANGES TO ADDRESS "AGING" SYSTEM CONCERNS: The proposal also would specifically address aging system issues during the design/certification process. Examples of concerns relative to aging are heat damaged wire, chafing of wire, deteriorated repairs, and potential for arcing.

CHANGES TO THE INSTRUCTIONS FOR CONTINUED AIRWORTHINESS: The proposal would require applicants for a new TC, amended TC, or STC to include in their instructions for continued airworthiness applicable and effective tasks, derived from an analytical logic procedure, that minimize accumulation of combustible materials and address wiring discrepancies. In addition, the proposal would require standard wiring practices data, wire separation design guidelines, special wire system identification

requirements, and an electrical load analysis to be included in the instructions for continued airworthiness

The proposed changes to part 25, appendix H.25.3(b)(5) include a requirement to provide protection and caution information for wiring systems during the performance of "maintenance, alterations or repairs." Although instructions for alterations (typically communicated via service bulletins) are not considered instructions for continued airworthiness required by this appendix, they are included in the proposal to comply with ATSRAC recommendation that service bulletin instructions include protection and caution information for wiring systems, where appropriate.

4. Proposed Changes to Parts 91, 121, 125, and 129:

APPLICABILITY OF THE OPERATING REQUIREMENTS: This proposal would prohibit the operation of certain airplanes operated under 14 CFR parts 91, 121, 125, and 129 beyond a specified compliance time, unless the operators of those affected airplanes have incorporated the enhanced wiring inspection and maintenance procedures in their approved maintenance or inspection program, as applicable. This operational applicability would

ensure that all airplane models affected by the SFAR would be subject to the FAA's enhanced wiring system maintenance and inspection procedures. An enhanced wiring maintenance program and associated documents will likely include--

- General visual and/or detailed inspections of specific wiring system installations;
- Tasks to minimize contamination on or near wire systems;
- Expectations of a general visual inspection as it pertains to wiring system discrepancies; and
- Update of documentation to raise the awareness of protecting wire systems during maintenance activities.

Additionally, the proposed rule would require new training requirements for affected operators. These training requirements would be based on the *Aircraft Wiring Systems Training Curriculum and Lesson Plans* developed by the ATSRAC. Advisory Circular AC 120-YY, Aircraft Wiring Systems Training Program, provides further details of the training curriculum and lesson plans. The training would be required for all

persons who perform inspection and maintenance on or around wiring, including persons who perform cleaning in support of maintenance. "Cleaning in support of maintenance" includes cleaning of items or areas to facilitate maintenance or inspection such as would occur during a scheduled check done in a hangar. It is not intended to include typical overnight cleaning of aircraft cabin equipment such as seats, carpets, windows, or other such items. The rule would require the training for each person to be specific to the duties that person performs. AC 120-YY includes training modules for persons such as flight crews that is not required by the rule. Training of persons beyond those specified in the rule will be at operator discretion.

APPLICABILITY OF THE OPERATING RULES TO FIELD APPROVALS AND ANY OTHER MEANS OF MAKING CHANGES TO AIRPLANE WIRING SYSTEMS:

Design changes to airplane wiring systems have been incorporated through field approvals and other means issued to operators of those airplanes. While operators are encouraged to review such design changes to determine the need to amend maintenance, inspection, and repair instructions and update the maintenance program if necessary, the proposed

rule does not mandate this action. Field approved or operator approved modification to any aircraft zone that contains wiring will be subject to the tasks identified by the TC and STC Holders application of the EZAP as required by the proposed rule. When properly applied by the TC/STC Holders, the EZAP will result in a GVI as the minimum level of inspection for all wiring in any zone where the presence of combustible materials is possible, or wiring is in close proximity to both primary and backup flight controls. The EZAP will also identify applicable and effective tasks to reduce the accumulation of combustible materials in zones where wiring is present. Considering that TC/STC Holder tasks for wiring and combustible materials will include wiring installed or modified by field approval or operator approval, and the logistical difficulty of applying EZAP individually to these modifications, they are not included in the rule.

5. Proposed Changes to Part 145:

Concurrent with the changes to the operating requirements described above, the proposed rule would include new training requirements for repair stations certificated under part 145 who perform maintenance on for turbine-powered transport category airplanes, provided the type certificate

was issued after January 1, 1958, and the airplane has a maximum type certificated passenger capacity of 30 or more, or a maximum type certificated payload capacity of 7500 pounds or more. FAA Advisory Circular 120.YY, Aircraft Wiring Systems Training program, provides a training curriculum that is an acceptable means of compliance with this proposed rule. Substantial maintenance providers must be specifically trained in the protections and cautions pertinent to performing maintenance on or around wiring systems. This training program would, at a minimum, address each of the following topics, as applicable to individuals and the specific task(s) they perform:

(1) Awareness of wiring as a system.

(2) Maintenance practices for wiring systems.

(3) Inspection of wiring systems.

(4) Housekeeping practices to protect wiring systems from contamination and accidental damage.

Compliance

This notice proposes a 24-month compliance time from the effective date of the final rule, or within X months after the issuance of a certificate for which application was filed before the effective date of this SFAR, whichever is later, for TC and STC holders to apply analytical logic procedure. After the 24 month period during which the TC and STC Holders are required to apply the analytical logic procedure to identify new tasks that address wiring discrepancies and tasks to reduce the accumulation of combustible materials, Operators will be given 12 months to incorporate the new tasks in their respective maintenance programs.

Trade Impact Assessment

The Trade Agreement Act of 1979 prohibits Federal agencies from engaging in any standards or related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards. In addition, consistent with the Administration's belief in the general superiority and desirability of free trade, it is the policy of the

Administration to remove or diminish to the extent feasible, barriers to international trade, including both barriers affecting the export of American goods and services to foreign countries, and barriers affecting the import of foreign goods and services into the United States.

In accordance with the above statute and policy, the FAA assessed the potential effect of this proposed rule and determined that it would have only a **[**domestic impact**]** and, therefore, a minimal effect on any trade-sensitive activity.

Unfunded Mandates Assessment

Title II of the Unfunded Mandates Reform Act of 1995 (the Act), enacted as Pub. L. 104-4 on March 22, 1995, requires each Federal agency, to the extent permitted by law, to prepare a written assessment of the effects of any Federal mandate in a proposed or final agency rule that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of $100 million or more (adjusted annually for inflation) in any one year. Section 204(a) of the Act, 2 U.S.C. 1534(a), requires the Federal agency to develop an effective process to permit timely input by elected officers (or their designees) of State, local,

and tribal governments on a proposed "significant intergovernmental mandate." A "significant intergovernmental mandate" under the Act is any provision in a Federal agency regulation that will impose an enforceable duty upon State, local, and tribal governments, in the aggregate, of $100 million (adjusted annually for inflation) in any one year. Section 203 of the Act, 2 U.S.C. 1533, which supplements section 204(a), provides that before establishing any regulatory requirements that might significantly or uniquely affect small governments, the agency shall have developed a plan that, among other things, provides for notice to potentially affected small governments, if any, and for a meaningful and timely opportunity to provide input in the development of regulatory proposals.

The FAA has determined that this proposed rule would not contain a significant intergovernmental or private sector mandate as defined by the Act.

Executive Order 13132, Federalism

The FAA has analyzed this proposed rule under the principles and criteria of Executive Order 13132, Federalism. The FAA has determined that this proposed action would not have a substantial direct effect on the

States, or the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, the FAA has determined that this proposed rule would not have federalism implications.

International Civil Aviation Organization (ICAO) and Joint Aviation Regulations

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to comply with ICAO Standards and Recommended Practices to the maximum extent practicable. The FAA has determined that this proposed rule would not conflict with any international agreement of the United States.

Paperwork Reduction Act

There are no new requirements for information collection associated with this proposed rule that would require approval from the Office of Management and Budget pursuant to the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)).

Regulations Affecting Intrastate Aviation in Alaska

Section 1205 of the FAA Reauthorization Act of 1996 (110 Stat. 3213) requires the Administrator, when modifying regulations in Title 14 of the CFR in a manner affecting intrastate aviation in Alaska, to consider the extent to which Alaska is not served by transportation modes other than aviation, and to establish such regulatory distinctions as he or she considers appropriate. Because this proposed rule would apply to the operation of certain transport category airplanes under parts 91, 121, 125, and 129 of Title 14, it could, if adopted, affect intrastate aviation in Alaska. The FAA therefore specifically requests comments on whether there is justification for applying the proposed rule differently to intrastate operations in Alaska.

List of Subjects

14 CFR Part 21

Aircraft, Aviation safety

14 CFR Part 25

Aircraft, Aviation safety

14 CFR Part 91

Aircraft, Aviation safety

14 CFR Part 121

Air carriers, Aircraft, Aviation, Aviation safety, Safety, Transportation

14 CFR Part 125

Aircraft, Aviation safety

14 CFR Part 129

Air carriers, Aircraft, Aviation safety

14 CFR Part 145

Aircraft, Aviation safety

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend parts 21, 25, 91, 121, 125, and 129 of Title 14, Code of Federal Regulations, as follows:

PART 21 - CERTIFICATION PROCEDURES FOR PRODUCTS AND PARTS

1. The authority citation for part 21 continues to read as follows:

Authority: 42 U.S.C. 7572, 40105, 40113, 44701-44702, 44707, 44709, 44711, 44713, 44715, 45303.

2. In part 21 add SFAR No. XX to read as follows:

SPECIAL FEDERAL AVIATION REGULATIONS

* * * * *

SFAR No. XX - PROGRAM TO ENHANCE AIRCRAFT ELECTRICAL WIRING INTERCONNECTION SYSTEM MAINTENANCE

1. Applicability.

(a) This SFAR applies to:

(i) The holders of type certificates for turbine-powered transport category airplanes, provided the type certificate was issued after January 1, 1958, and the airplane has a maximum type certificated passenger capacity of 30 or more, or a maximum type certificated payload capacity of 7,500 pounds or more.

(ii) The holders of supplemental type certificates for airplanes described in paragraph (a)(i) of this section, where the STC may cause wiring to be installed, removed, altered, disturbed, subjected to contamination,

(b) If the application was filed before [Insert date 30 days after date

of publication in the Federal Register], the effective date of this SFAR, and the certificate was not issued before [Insert date 30 days after date of publication in the Federal Register] this SFAR also applies to:

(i) Applicants for new type certificates for turbine-powered transport category airplanes having a maximum type certificated passenger capacity of 30 or more, or a maximum type certificated payload capacity of 7,500 pounds or more.

(ii) Applicants for amendments to an existing type certificate for airplanes described in paragraph (a)(i) of this section.

(iii) Applicants for new supplemental type certificates for airplanes described in paragraph (a)(i) of this section, that may cause wiring to be installed, removed, altered, disturbed, subjected to contamination, or may cause a change in the electrical wiring interconnection system's operating environment.

2. Compliance.

(a) No later than {insert date 24 months after the effective date of the

final rule}, or within 18 months after the issuance of a certificate for which application was filed before {Insert date 30 days after date of publication of the final rule in the Federal Register}, whichever is later, each type certificate holder, or supplemental type certificate holder must accomplish the following for each Type Certificate and Supplemental Type Certificate:

(1) Perform an analytical logic procedure specifically designed to identify applicable and effective tasks that minimize accumulation of combustible materials, address wiring discrepancies, and address installations where wiring is in close proximity to both primary and backup flight controls.

(2) Communicate to FAA and operators the results of the analytical logic procedure.

(3) Update the instructions for continued airworthiness to include tasks derived from the analytical logic procedure performed in (1) above.

(4) Ensure that the standard practices section of the maintenance instructions include protection and caution information to

minimize contamination and accidental damage to electrical wiring interconnection systems.

(b) After {insert date 24 months after effective date of final rule}, each type certificate holder, or supplemental type certificate holder must include protection and caution information to minimize the contamination and accidental damage to electrical wiring interconnection systems in all newly created maintenance instructions, including service bulletins, where applicable.

(End of SFAR portion of NPRM)

PART 25 – AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY AIRPLANES

4. The authority citation for Part 25 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702 and 44704.

Amend H25.3 of Appendix H by revising paragraph (b)(1) and adding paragraph (b)(5) to read as follows:

Appendix H to Part 25 -- Instructions for Continued Airworthiness

*** * * * ***

H25.3 *Content.*

* * * * *

(b) Maintenance instructions.

(1) Scheduling information for each part of the airplane and its engines, auxiliary power units, propellers, accessories, instruments, electrical wiring interconnection systems, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection

program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the airplane.

The scheduled maintenance instructions for electrical wiring interconnection systems shall be derived from an analytical logic procedure that provides a means to identify applicable and effective tasks that minimize accumulation of combustible materials, address wiring discrepancies, and address installations where wiring is in close proximity to both primary and backup flight controls. Such tasks will be uniquely identified for future traceability. The application of an analytical logic procedure requires the assumption of particular inspection standards (i.e., definition of a GVI, DET). The implementation of the tasks derived from the analytical logic procedure requires that they are performed to those standards.

(2) Troubleshooting information describing probable

malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.

(3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.

(4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.]

* * * * *

(5) Instructions for maintenance, alteration, or repairs must include protection and caution information designed to minimize contamination and accidental damage to electrical wiring interconnection systems where applicable.

* * * * *

(h) Electrical wire interconnection system (EWIS) practices in a standard format, which includes wire separation guidelines and special wiring identification requirements

(i) Electrical load data, and instructions for updating electrical load data.

Add 25.[xxx] to read as follows

§ 25.[xxx] Rule for TC and STC Holders to conduct EZAP determination for new Service Bulletins

1. Applicability.

(a) This rule applies to:

[Same effectivity as SFAR-XX]

2. Compliance.

(a) After {insert date 24 months after the effective date of the final rule}, for each new modification to the Type Certificate / Supplemental Type Certificate communicated via Service Bulletin or equivalent, the TC/STC Holder must accomplish the following:

1) Determine if the modification requires application of an analytical logic procedure that provides a means to identify applicable and effective tasks that minimize accumulation of combustible materials, address wiring discrepancies, and address

installations where wiring is in close proximity to both primary and backup flight controls in the zone

2) Apply the analytical logic procedure for each modification as determined above

3) Include tasks derived from the application of the analytical logic procedure performed above in the modification instructions. These tasks shall be uniquely identified in the modification instructions for future traceability.

PART 91 - GENERAL OPERATING AND FLIGHT RULES

6. The authority citation for part 91 continues to read:

Authority: 49 U.S.C. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; Articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 Stat. 1180); 42 U.S.C. 4321 et. seq.; E.O. 11514; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 21, 1983).

Amend § 91.410 to add a paragraph (c) to read as follows:

§ 91.410 Special maintenance program requirements.

* * * * *

(c) After [insert date 36 months after the effective date of the final rule] no certificate holder may operate a turbine-powered transport category airplanes, provided the type certificate was issued after January 1, 1958, and the airplane has a maximum type certificated passenger capacity of 30 or more, or a maximum type certificated payload capacity of more than 7,500 pounds, unless:

(1) The inspection program includes instructions for the continued airworthiness of electrical wiring interconnection systems that are developed using an analytical logic procedure that provides a means to identify applicable and effective tasks that minimize accumulation of combustible materials, address wiring discrepancies, and address installations where wiring is in close proximity to both primary and backup flight controls.

(2) Maintenance instructions include protection and caution information designed to minimize contamination and accidental damage to electrical wiring interconnection systems where applicable.

Add 91.[xxx] as follows:

§ 91.[xxx] Rule for Operators of STC's where there is no viable STC Holder ("Orphan" STCs)

1. Applicability.

(a) This rule applies to:

[The operators of airplanes described in SFAR-XX]

2. Compliance.

(a) No later than [insert date 24 months after the effective date of the final rule], for each STC for which there is no viable STC Holder to comply with the requirements of SFAR-XX,

1) Determine if the STC requires application of an analytical logic procedure that provides a means to identify applicable and effective tasks that minimize accumulation of combustible

materials, address wiring discrepancies, and address installations where wiring is in close proximity to both primary and backup flight controls

2) Apply the analytical logic procedure for each STC as determined above

(b) No later than {insert date 36 months after the effective date of the final rule},

1) Amend the aircraft inspection program as required based on the results of the analytical logic procedure performed above.

PART 121 - OPERATING REQUIREMENTS: DOMESTIC, FLAG, AND SUPPLEMENTAL OPERATIONS

8. The authority citation for part 121 continues to read:

Authority: 49 U.S.C. 106(g), 40113, 40119, 44101, 44701-44702, 44705, 44709-44711, 44713, 44716-44717, 44722, 44901, 44903-44904, 44912, 46105.

Amend § 121.370 by adding paragraph (c) to read as follows:

§ 121.370 Special maintenance program requirements.

* * * * *

(c) No certificate holder may operate a turbine-powered transport category airplanes, provided the type certificate was issued after January 1, 1958, and the airplane has a maximum type certificated passenger capacity of 30 or more, or a maximum type certificated payload capacity of 7,500 pounds or more, for which the TC was issued after January 1, 1958, unless:

(1) After [Insert date 6 months after the effective date of the final rule], the certificate holder's manual (as required in § 121.133(b)) includes protection and caution information designed to minimize contamination and accidental damage to electrical wiring interconnection systems.

(2) After [Insert date 36 months after the effective date of the final rule], the maintenance instructions include protection and caution information designed to minimize contamination and accidental damage to electrical wiring interconnection systems where applicable

(d) After [Insert date 36 months after the effective date of the final rule], no certificate holder may operate a turbine-powered transport category airplanes, provided the type certificate was issued after January 1, 1958, and the airplane has a maximum type certificated passenger capacity of 30 or more, or a maximum type certificated payload capacity of 7,500 pounds or more, for which the TC was issued after January 1, 1958, unless:

(1) The maintenance program includes instructions for the continued airworthiness of electrical wiring interconnection systems that are developed using an analytical logic procedure that provides a means to identify applicable and effective tasks that minimize accumulation of combustible materials, address wiring discrepancies, and address installations where wiring is in close proximity to both primary and backup flight controls.

Add new § 121.376 to read as follows:

§ 121.376 Training program for electrical wiring interconnection systems.

(a) After {Insert date 12 months after the effective date of the final rule}, each certificate holder, or person performing maintenance, preventive maintenance, or alteration functions on behalf of the certificate holder, must have a training program that accomplishes the following:

(1) Ensure acceptable level of awareness of wiring as a system that requires adherence to proper procedures, methods, techniques, and practices.

(2) Ensure an acceptable knowledge of precautions and housekeeping practices to be followed during the performance of all aircraft maintenance, preventive maintenance, inspection, alteration, and cleaning in support of these activities in order to minimize contamination and accidental damage to electrical wiring interconnection systems (protection of wire bundles from drilling debris, etc.).

(3) Ensure acceptable knowledge of procedures, methods, techniques, and practices to be used when performing maintenance, preventive maintenance, inspection, alteration, and cleaning of electrical wiring interconnection systems.

(b) The training program required in paragraph (a)(1) and (2) of this section must be provided to all individuals performing maintenance, preventive maintenance, inspection, alteration, and cleaning of aircraft in support of these activities.

(c) The training program required in paragraph (a)(3) must be provided to all individuals performing maintenance, preventive maintenance, inspection, alteration, and cleaning of aircraft electrical wiring interconnection systems. The training topics should be specific to individuals and the tasks they perform.

(d) Based on the objectives stated in paragraph (a) the training program must, at a minimum, address the following topics, as applicable to individuals and the specific task(s) they perform:

(1) Awareness of wiring as a system.

(2) Maintenance practices for electrical wiring interconnection systems.

(3) Inspection of electrical wiring interconnection systems.

(4) Housekeeping practices to protect electrical wiring interconnection systems from contamination and accidental damage.

Add new 121.[xxx] to read as follows

§ 121.[xxx] Rule for Operators of STC's where there is no viable STC Holder ("Orphan" STCs)

1. Applicability.

(a) This rule applies to:

[The operators of airplanes described in SFAR-XX]

2. Compliance.

(a) No later than [insert date 24 months after the effective date of the final rule], for each STC for which there is no viable STC Holder to comply with the requirements of SFAR-XX,

1) Determine if the STC requires application of an analytical

logic procedure that provides a means to identify applicable and effective tasks that minimize accumulation of combustible materials, address wiring discrepancies, and address installations where wiring is in close proximity to both primary and backup flight controls

2) Apply the analytical logic procedure for each STC as determined above

(b) No later than {insert date 36 months after the effective date of the final rule},

(1) Amend the aircraft maintenance program as required based on the results of the analytical logic procedure performed above

PART 125 – CERTIFICATION AND OPERATIONS: AIRPLANES HAVING A SEATING CAPACITY OF 20 OR MORE PASSENGERS OR A

MAXIMUM PAYLOAD CAPACITY OF 6,000 POUNDS OR MORE

The authority citation for part 125 continues to read:

Authority: 49 U.S.C. 106(g), 40113, 44701-44702, 44705, 44710-44711, 44713, 44716-44717, 44722.

Amend § 125.248 by adding paragraph (c) to read as follows:

§ 125.248 Special maintenance program requirements.

* * * * *

(c) After [insert date 36 months after the effective date of the final rule] no certificate holder may operate a turbine-powered airplane with a maximum type certificated passenger capacity of 30 or more, or a maximum type certificated payload capacity of 7,500 pounds or more for which the TC was issued after January 1, 1958, unless:

1) The maintenance program includes instructions for the continued airworthiness of electrical wiring interconnection systems that are developed using an

analytical logic procedure that provides a means to identify applicable and effective tasks that minimize accumulation of combustible materials, address wiring discrepancies, and address installations where wiring is in close proximity to both primary and backup flight controls

2) Maintenance instructions include protection and caution information designed to minimize contamination and accidental damage to electrical wiring interconnection systems where applicable

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Add § 125.253 to read as follows:

§ 125.253 Maintenance and preventive maintenance training program. rule], each certificate holder, or person performing maintenance, preventive maintenance, or alteration functions on behalf of the certificate holder, must have a training program that accomplishes the following

(a) After [Insert date 12 months after the effective date of the final:

(1) Ensure acceptable level of awareness of wiring as a system that requires adherence to proper procedures, methods, techniques, and practices.

(2) Ensure an acceptable knowledge of precautions and housekeeping practices to be followed during the performance of all aircraft maintenance, preventive maintenance, inspection, alteration, and cleaning in support of these activities in order to minimize contamination and accidental damage to electrical wiring interconnection systems (protection of wire bundles from drilling debris, etc.).

(3) Ensure acceptable knowledge of procedures, methods, techniques, and practices to be used when performing maintenance, preventive maintenance, inspection, alteration, and cleaning of electrical wiring interconnection systems.

(b) The training program required in paragraph (a)(1) and (2) of this section must be provided to all individuals performing maintenance, preventive maintenance, inspection, alteration, and cleaning of aircraft in support of these activities.

(c) The training program required in paragraph (a)(3) must be provided to all individuals performing maintenance, preventive maintenance, inspection, alteration, and cleaning of aircraft electrical wiring interconnection systems. The training topics should be specific to individuals and the tasks they perform.

(d) Based on the objectives stated in paragraph (a) the training program must, at a minimum, address the following topics, as applicable to individuals and the specific task(s) they perform:

(1) Awareness of wiring as a system.

(2) Maintenance practices for electrical wiring interconnection systems.

(3) Inspection of electrical wiring interconnection systems.

(4) Housekeeping practices to protect electrical wiring interconnection systems from contamination and accidental damage.

Add 125.[xxx] to read as follows:

§ 125.[xxx] Rule for Operators of STC's where there is no viable

STC Holder ("Orphan" STCs)

1. Applicability.

(a) This rule applies to:

[The operators of airplanes described in SFAR-XX]

2. Compliance.

(a) No later than [insert date 24 months after the effective date of the final rule], for each STC for which there is no viable STC Holder to comply with the requirements of SFAR-XX,

1) Determine if the STC requires application of an analytical logic procedure that provides a means to identify applicable and effective tasks that minimize accumulation of combustible materials, address wiring discrepancies, and address installations where wiring is in close proximity to both primary and backup flight controls

2) Apply the analytical logic procedure for each STC as determined above

(b) No later than [insert date 36 months after the effective date of the final rule],

1) Amend the aircraft maintenance program as required based on the results of the analytical logic procedure performed above.

PART 129 - OPERATIONS: FOREIGN AIR CARRIERS AND FOREIGN OPERATORS OF U.S.-REGISTERED AIRPLANE ENGAGED IN COMMON CARRIAGE

15. The authority citation for part 129 continues to read:

Authority: 49 U.S.C. 106(g), 40104-40105, 40113, 40119, 44701-44702, 44712, 44716-44717, 44722, 44901-44904, 44906**.**

Amend § 129.32 by adding a new paragraph (c) to read as follows:

§ 129.32 Special maintenance program requirements.

* * * * *

(c) After [insert date 36 months after the effective date of the final rule] no certificate holder may operate a turbine-powered airplanes with a maximum type certificated passenger capacity of 30 or more, or a maximum type certificated payload capacity of

7,500 pounds or more, for which the TC was issued after January 1, 1958, unless:

(1) The maintenance program includes instructions for the continued airworthiness of electrical wiring interconnection systems that are developed using an analytical logic procedure that provides a means to identify applicable and effective tasks that minimize accumulation of combustible materials, address wiring discrepancies, and address installations where wiring is in close proximity to both primary and backup flight controls.

(2) Maintenance instructions include protection and caution information designed to minimize contamination and accidental damage to electrical wiring interconnection systems where applicable.

Add § 129.33 to read as follows:

§ 129.33 Maintenance and preventive maintenance training program.

(a) After [Insert date 12 months after the effective date of the final

rule], each certificate holder, or person performing maintenance, preventive maintenance, or alteration functions on behalf of the certificate holder, it must have a training program that accomplishes the following:

(1) Ensure acceptable level of awareness of wiring as a system that requires adherence to proper procedures, methods, techniques, and practices.

(2) Ensure an acceptable knowledge of precautions and housekeeping practices to be followed during the performance of all aircraft maintenance, preventive maintenance, inspection, alteration, and cleaning in support of these activities in order to minimize contamination and accidental damage to electrical wiring interconnection systems (protection of wire bundles from drilling debris, etc.).

(3) Ensure acceptable knowledge of procedures, methods, techniques, and practices to be used when performing

maintenance, preventive maintenance, inspection, alteration, and cleaning of electrical wiring interconnection systems.

(b) The training program required in paragraph (a)(1) and (2) of this section must be provided to all individuals performing maintenance, preventive maintenance, inspection, alteration, and cleaning of aircraft in support of these activities.

(c) The training program required in paragraph (a)(3) must be provided to all individuals performing maintenance, preventive maintenance, inspection, alteration, and cleaning of aircraft electrical wiring interconnection systems. The training topics should be specific to individuals and the tasks they perform.

(d) Based on the objectives stated in paragraph (a) the training program must, at a minimum, address the following topics, as applicable to individuals and the specific task(s) they perform:

(1) Awareness of wiring as a system.

(2) Maintenance practices for electrical wiring interconnection systems.

(3) Inspection of electrical wiring interconnection systems.

(4) Housekeeping practices to protect electrical wiring interconnection systems from contamination and accidental damage.

Add 129.[xxx] to read as follows:

§ 129.[xxx] Rule for Operators of STC's where there is no viable STC Holder ("Orphan" STCs)

1. Applicability.

(a) This rule applies to:

[The operators of airplanes described in SFAR-XX]

2. Compliance.

(a) No later than [insert date 24 months after the effective date of the final rule], for each STC for which there is no viable STC Holder to comply with the requirements of SFAR-XX,

1) Determine if the STC requires application of an analytical logic procedure that provides a means to identify applicable and effective tasks that minimize accumulation of combustible materials, address wiring discrepancies, and address

installations where wiring is in close proximity to both primary and backup flight controls

2) Apply the analytical logic procedure for each STC as determined above

(b) No later than {insert date 36 months after the effective date of the final rule},

1) Amend the aircraft maintenance program as required based on the results of the analytical logic procedure performed above

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PART 145--REPAIR STATIONS

The authority citation for part 145 continues to read:

Authority: 49 U.S.C. 106(g), 40113, 44701-44702, 44707, 44717.

Add § 145.[xxx] to read as follows:

§ 145.[xxx] Special maintenance program requirements.

(a) After [Insert date 6 months after the effective date of the final rule], each repair station, or person performing maintenance,

preventive maintenance, or alteration functions on behalf of the repair station, must accomplish the following:

(1) Incorporate protection and caution information designed to minimize contamination and accidental damage to electrical wiring interconnection systems into its general instructions manual

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Add § 145.65 to read as follows:

§ 145.65 Maintenance and preventive maintenance training program.

1. Applicability.

(a) This rule applies to:

[Repair stations performing maintenance on airplanes described in SFAR-XX]

2. Compliance.

(a) After [Insert date 12 months after the effective date of the final rule], each repair station, or person performing maintenance, preventive maintenance, or alteration functions on behalf of the

repair station, must have a training program that accomplishes the following:

(1) Ensure acceptable level of awareness of wiring as a system that requires adherence to proper procedures, methods, techniques, and practices.

(2) Ensure an acceptable knowledge of precautions and housekeeping practices to be followed during the performance of all aircraft maintenance, preventive maintenance, inspection, alteration, and cleaning in support of these activities to minimize contamination and accidental damage to electrical wiring interconnection systems (protection of wire bundles from drilling debris, etc.).

(3) Ensure acceptable knowledge of procedures, methods, techniques, and practices to be used when performing maintenance, preventive maintenance, inspection, alteration, and cleaning of electrical wiring interconnection systems.

(b) The training program required in paragraph (a)(1) and (2) of this section must be provided to all individuals performing

maintenance, preventive maintenance, inspection, alteration, and cleaning of aircraft in support of these activities.

(c) The training program required in paragraph (a)(3) must be provided to all individuals performing maintenance, preventive maintenance, inspection, alteration, and cleaning of aircraft electrical wiring interconnection systems. The training topics should be specific to individuals and the tasks they perform.

(d) Based on the objectives stated in paragraph (a) the training program must, at a minimum, address the following topics, as applicable to individuals and the specific task(s) they perform:

(1) Awareness of wiring as a system.

(2) Maintenance practices for electrical wiring interconnection systems.

(3) Inspection of electrical wiring interconnection systems.

(4) Housekeeping practices to protect electrical wiring interconnection systems from contamination and accidental damage.

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/S/

James Ballough

Director, Flight Standards Service